

PCTA9411-27.txt

<110> HANMI PHARM. IND. CO., LTD.

<120> Method for the mass production of immunoglobulin constant region

<150> KR10-2003-0080299

<151> 2003-11-13

<160> 46

<170> KopatentIn 1.71

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<211> 37

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<213> Artificial Sequence

<220>

<223> primer

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<223> primer

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<223> primer

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<223> primer

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36

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<212> DNA

<213> Homo sapiens

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120

tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca

180

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 tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagaa agttgagccc 300
 aaatcttgtg acaaaactca cacatgcccc cgtgcccag cacctgaact cctgggggga 360
 ccgtcagict tctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccctt 420
 gaggtcacat gcgtgggtgt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 480
 tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 540
 agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag 600
 gagtacaagt gcaaggcttc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc 660
 aaagccaaag ggcagccccg agagccacag gtgtacaccc tgccccatc ccgggatgag 720
 ctgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc 780
 gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg 840
 ctggactccg acggctcctt ctctctctac agcaagctca ccgtggacaa gacgaggtgg 900
 cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg 960
 cagaagagcc tctccctgtc tccgggtaaa 990

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 tggagggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 180
 agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 240
 aaacacaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaag 300
 agcttcaaca ggggagagtg ttag 324

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<210> 8
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<211> 33
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 <223> primer

<400> 9
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 <223> primer

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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 11
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<210> 12
 <211> 69
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 <213> Escherichia coli

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 gccagggcg 69

<210> 13
 <211> 45
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 <213> Artificial Sequence

<220>
 <223> primer

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 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 14
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 tggaaactcag gcgccctgac cagcggcggtg cacaccttcc cggctgtcct acagtctctca 180
 ggactctact ccctcagcag cgtgggtgacc gtgccctcca gcagcttggg cacgaagacc 240
 tacacctgca acgtagaica caagcccagc aacaccaagg tggacaagag agttgagtcc 300
 aaataatggtc ccccatgccc atcatgcca gcacctgagt tcctgggggg accatcagtc 360
 ttctgttcc ccccaaaacc caaggacact ctcatgatct cccggacccc tgagggtcacg 420
 tgcgtgggtg tggacgtgag ccaggaagac cccgagggtcc agttcaactg gtacgtggat 480
 ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagttcaa cagcacgtac 540
 cgtgtgggtca gcgtctctac cgtcctgcac caggactggc tgaacggcaa ggagtacaag 600
 tgcaaggctt ccaacaaagg cctcccgtcc tccatcgaga aaaccatctc caaagccaaa 660
 gggcagcccc gagagccaca ggtgtacacc ctgcccccat cccaggagga gatgaccaag 720
 aaccagggtca gcctgacctg cctgggtcaaa ggcttctacc ccagcgacat cgcctgggag 780
 tgggagagca atgggcagcc ggagaacaac tacaagacca cgcctcccggt gctggactcc 840
 gacggctcct tcttctctca cagcaggcta accgtggaca agagcagggtg gcaggagggg 900
 aatgtcttct catgtctcgt gatgcatgag gctctgcaca accactacac acagaagagc 960
 ctctccctgt ctctgggtaa atga 984

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<220>
 <223> primer

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<210> 17
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 <212> DNA
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<220>
 <223> primer

<400> 17
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<210> 18
 <211> 29
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<220>
 <223> primer

PCTA9411-27.txt

<400> 18
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<220>
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<400> 19
cggtttccac caagggccca tccgtcttc 30

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<211> 21
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<400> 20
cgcgactgt ggctgcacca t 21

<210> 21
<211> 220
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Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe
1 5 10 15
Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
20 25 30
Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
35 40 45
Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
50 55 60
Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
65 70 75 80
Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
85 90 95
Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
100 105 110
Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
115 120 125
Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
130 135 140
Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
145 150 155 160
Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
165 170 175
Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
180 185 190
Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
195 200 205

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Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215 220

<210> 22
 <211> 220
 <212> PRT
 <213> Homo sapiens

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 1 5 10 15

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 20 25 30

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
 35 40 45

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 50 55 60

Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 65 70 75 80

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 85 90 95

Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
 100 105 110

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 115 120 125

Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 130 135 140

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 145 150 155 160

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 165 170 175

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 180 185 190

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 195 200 205

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215 220

<210> 23
 <211> 220
 <212> PRT
 <213> Homo sapiens

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 1 5 10 15

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 20 25 30

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
 35 40 45

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 50 55 60

Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 65 70 75 80

PCTA9411-27.txt

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 85 90 95
 Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
 100 105 110
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 115 120 125
 Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 130 135 140
 Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 145 150 155 160
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 165 170 175
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 180 185 190
 Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 195 200 205
 Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215 220

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 <212> PRT
 <213> Homo sapiens

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 Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
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 Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45
 Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 50 55 60
 Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
 65 70 75 80
 Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95
 Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro
 100 105 110
 Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 115 120 125
 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 130 135 140
 Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
 145 150 155 160
 Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
 165 170 175
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 180 185 190
 Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
 195 200 205
 Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 210 215 220

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Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys
 225 230 235 240
 Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 245 250 255
 Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 260 265 270
 Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 275 280 285
 Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
 290 295 300
 Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 305 310 315 320
 Leu Ser Leu Ser Leu Gly Lys
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 <213> Homo sapiens

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 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
 1 5 10 15
 Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 20 25 30
 Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45
 Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 50 55 60
 Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
 65 70 75 80
 Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95
 Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
 100 105 110
 Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
 115 120 125
 Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
 130 135 140
 Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
 145 150 155 160
 Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
 165 170 175
 Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
 180 185 190
 His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
 195 200 205
 Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
 210 215 220
 Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
 225 230 235 240
 Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr

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<400> 28
 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro
 1 5 10

<210> 29
 <211> 220
 <212> PRT
 <213> Homo sapiens

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 1 5 10 15
 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 20 25 30
 Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
 35 40 45
 Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 50 55 60
 Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 65 70 75 80
 Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 85 90 95
 Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
 100 105 110
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
 115 120 125
 Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 130 135 140
 Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 145 150 155 160
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 165 170 175
 Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu
 180 185 190
 Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 195 200 205
 Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
 210 215 220

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<400> 30
 Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys
 1 5 10 15
 Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val
 20 25 30
 Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr
 35 40 45

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Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu
 50 55 60
 Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His
 65 70 75 80
 Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys
 85 90 95
 Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln
 100 105 110
 Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met
 115 120 125
 Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro
 130 135 140
 Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn
 145 150 155 160
 Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu
 165 170 175
 Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val
 180 185 190
 Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln
 195 200 205
 Lys Ser Leu Ser Leu Ser Leu Gly Lys
 210 215

<210> 31
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 <212> DNA
 <213> primer

<400> 31
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29

<210> 32
 <211> 33
 <212> DNA
 <213> primer

<400> 32
 gggggatcct catttaccgc gagacaggga gag

33

<210> 33
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 <212> PRT
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<400> 33
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 1 5 10

<210> 34
 <211> 107
 <212> PRT
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<400> 34
 Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
 20 25 30

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Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 35 40 45
 Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 50 55 60
 Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
 65 70 75 80
 Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
 85 90 95
 Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 100 105

<210> 35
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<400> 35
 Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro
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 Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr
 20 25 30
 Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Gln Phe Asn
 35 40 45
 Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg
 50 55 60
 Glu Glu Gln Phe Asn Ser Thr Phe Arg Val Val Ser Val Leu Thr Val
 65 70 75 80
 Val His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser
 85 90 95
 Asn Lys Gly Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys
 100 105 110
 Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu
 115 120 125
 Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe
 130 135 140
 Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu
 145 150 155 160
 Asn Asn Tyr Lys Thr Thr Pro Pro Met Leu Asp Ser Asp Gly Ser Phe
 165 170 175
 Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly
 180 185 190
 Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr
 195 200 205
 Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215

<210> 36
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 36
 Met Lys Lys Asn Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15
 Ile Ala Thr Asn Ala Tyr Ala

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20

<210> 37
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 <212> PRT
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 Met Lys Lys Thr Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15
 Ile Ala Thr Asn Ala Gln Ala
 20

<210> 38
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 38
 Met Lys Lys Thr Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
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 Ile Ala Thr Val Ala Gln Ala
 20

<210> 39
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 39
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 1 5 10 15
 Ile Ala Thr Asn Ala Gln Ala
 20

<210> 40
 <211> 23
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<400> 40
 Met Lys Lys Ser Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15
 Ile Ala Thr Asn Ala Gln Ala
 20

<210> 41
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 41
 Met Lys Lys Ser Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15
 Ile Ala Thr Val Ala Gln Ala
 20

<210> 42
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 42
 Met Lys Lys Thr Ile Ala Phe Leu Leu Ala Ser Gly Phe Val Phe Ser

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1 5 10 15
 Ile Ala Thr Val Ala Gln Ala
 20

 <210> 43
 <211> 23
 <212> PRT
 <213> Escherichia coli

 <400> 43
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 1 5 10 15
 Ile Ala Thr Val Ala Gln Ala
 20

 <210> 44
 <211> 23
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 <213> Escherichia coli

 <400> 44
 Met Lys Lys Lys Ser Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15
 Ile Ala Thr Asn Ala Gln Ala
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 <210> 45
 <211> 23
 <212> PRT
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 <400> 45
 Met Val Lys Lys Thr Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15
 Ile Ala Thr Asn Ala Gln Ala
 20

 <210> 46
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 <213> Escherichia coli

 <400> 46
 Met Lys Lys Lys Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15
 Ile Ala Thr Val Ala Gln Ala
 20